

Application No. 10/004,061
Amendment dated December 28, 2004
Reply to Office Action of September 24, 2004

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-11 (canceled)

Claim 12 (original) The heat transfer fluid mixture of claim 1 wherein the at least one heavy gas is selected from the group consisting of CCl_3F , CCl_2F_2 , CClF_3 , CBrF_3 , CF_4 , CHCl_2F , CHClF_2 , CHF_3 , $\text{C}_2\text{Cl}_4\text{F}_2$, $\text{C}_2\text{Cl}_3\text{F}_3$, $\text{C}_2\text{Cl}_2\text{F}_4$, $\text{C}_2\text{Br}_2\text{F}_4$, C_2ClF_5 , C_2F_6 , $\text{C}_2\text{H}_4\text{F}_2$, $\text{C}_2\text{H}_2\text{F}_4$ and mixtures thereof.

Claim 13 (currently amended) The heat transfer fluid mixture of claim 1 wherein the at least one heavy gas is selected from the group consisting of $[\text{N}_2]$, O_2 , F_2 , Ne , Cl_2 , Ar , Br_2 , Kr , Xe , and Rn .

Claim 14 (currently amended) The heat transfer fluid mixture of claim 1 wherein the at least one heavy gas is selected from the group consisting of CH_4 , C_2H_4 , C_2H_6 , C_3H_8 , C_3H_6 , C_4H_{10} , $(\text{CH}_3)_3\text{CH}$, NH_3 , CO , $[\text{CO}_2]$, CCl_4 , CH_3Cl , SO_2 , SO_3 , NO , NO_2 , N_2O , and mixtures thereof.

Claim 15 (currently amended) The heat transfer fluid mixture of claim 1 wherein the at least one heavy gas is selected from the group consisting of $[\text{N}_2]$, O_2 , F_2 , Ne , Cl_2 , Ar , Br_2 , Kr , Xe , Rn , CH_4 , C_2H_4 , C_2H_6 , C_3H_8 , C_3H_6 , C_4H_{10} , $(\text{CH}_3)_3\text{CH}$, NH_3 , CO , $[\text{CO}_2]$, CCl_4 , CH_3Cl , SO_2 , SO_3 , NO , NO_2 , N_2O , CCl_3F , CCl_2F_2 , CClF_3 , CBrF_3 , CF_4 , CHCl_2F , CHClF_2 , CHF_3 , $\text{C}_2\text{Cl}_4\text{F}_2$, $\text{C}_2\text{Cl}_3\text{F}_3$, $\text{C}_2\text{Cl}_2\text{F}_4$, $\text{C}_2\text{Br}_2\text{F}_4$, C_2ClF_5 , C_2F_6 , $\text{C}_2\text{H}_4\text{F}_2$, $\text{C}_2\text{H}_2\text{F}_4$, and mixtures thereof.

Claims 16-19 (cancelled)

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Claim 20 (currently amended) A method of cooling an item, the method comprising contacting the item with the mixture of claim [[1]] 12, wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 21 (currently amended) A method of cooling an item, the method comprising contacting the item with the mixture of claim [[1]] 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 22 (currently amended) A method of cooling an item, the method comprising contacting the item with the mixture of claim [[1]] 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 23 (currently amended) A method of cooling an item, the method comprising contacting the item with the mixture of claim [[1]] 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claims 24-25 (cancelled)

Claim 26 (currently amended) A method of heating an item, the method comprising contacting the item with the mixture of claim [[1]] 12 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

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Claim 27 (currently amended) A method of heating an item, the method comprising contacting the item with the mixture of claim ~~[[2]]~~ 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 28 (currently amended) A method of heating an item, the method comprising contacting the item with the mixture of claim ~~[[3]]~~ 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 29 (currently amended) A method of heating an item, the method comprising contacting the item with the mixture of claim ~~[[4]]~~ 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claims 30-31 (cancelled)

Claim 32 (currently amended) A method of cooling an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[1]]~~ 12 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 33 (currently amended) A method of cooling an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[2]]~~ 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 34 (currently amended) A method of cooling an item traversing through a substantially confined space, the method comprising contacting the item with the

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mixture of claim ~~[[3]]~~ 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 35 (currently amended) A method of cooling an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[4]]~~ 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claims 36-37 (cancelled)

Claim 38 (currently amended) A method of heating an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[1]]~~ 12 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 39 (currently amended) A method of heating an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[2]]~~ 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 40 (currently amended) A method of heating an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[3]]~~ 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 41 (currently amended) A method of heating an item traversing through a substantially confined space, the method comprising contacting the item with the mixture of claim ~~[[4]]~~ 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

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Claims 42-43 (cancelled)

Claim 44 (currently amended) A method of cooling a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[1]] 12 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 45 (currently amended) A method of cooling a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[2]] 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 46 (currently amended) A method of cooling a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[3]] 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 47 (currently amended) A method of cooling a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[4]] 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claims 48-49 (cancelled)

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Claim 50 (currently amended) A method of heating a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[1]] 12 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 51 (currently amended) A method of heating a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[2]] 13 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 52 (currently amended) A method of heating a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[3]] 14 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claim 53 (currently amended) A method of heating a substantially cylindrical item traversing through a substantially confined space, the method comprising contacting the substantially cylindrical item with the mixture of claim [[4]] 15 wherein said contacting is selected from the group consisting of directly contacting, indirectly contacting, and combinations thereof.

Claims 54-55 (cancelled)

Claim 56 (currently amended) A method of cooling a substantially cylindrical optical fiber traversing through a heat exchanger, the method comprising directly contacting the optical fiber with the mixture of claim [[1]] 12.

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Claim 57 (currently amended) A method of cooling a substantially cylindrical optical fiber traversing through a heat exchanger, the method comprising directly contacting the optical fiber with the mixture of claim [[2]] 13.

Claim 58 (currently amended) A method of cooling a substantially cylindrical optical fiber traversing through a heat exchanger, the method comprising directly contacting the optical fiber with the mixture of claim [[3]] 14.

Claim 59 (currently amended) A method of cooling a substantially cylindrical optical fiber traversing through a heat exchanger, the method comprising directly contacting the optical fiber with the mixture of claim [[4]] 15.

Claims 60-66 (cancelled)

Claim 67 (currently amended) A method of making a heat transfer fluid, the heat transfer fluid adjustable between a first composition having high heat transfer coefficient and high cost of use, and a second composition having essentially the same heat transfer coefficient as the first composition but allowing reduced cost of use, the method comprising the steps of:

- a) providing at least one light gas from a light gas source;
- b) providing at least one heavy gas from a heavy gas or fluid source;
- c) ascertaining a heating or cooling demand; and
- d) combining the at least one light gas and the at least one heavy gas or fluid based on said demand.

Claims 68-71 (cancelled)

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Claim 72 (original) The method of claim 67 wherein said demand is a cooling demand.

Claim 73 (original) The method of claim 67 wherein said demand is a heating demand.

Claim 74 (original) The method of claim 67 wherein each of the at least one heavy gases has a molecular weight at least two times that of each of the at least one light gas.

Claim 75 (original) The method of claim 67 wherein said light gas is selected from the group consisting of hydrogen, helium, and any mixture thereof, and the heavy gas is selected from the group consisting of argon, any single fluid heavier than helium, and any mixture of fluids heavier than helium.

Claim 76 (original) The method of claim 67 wherein the at least one heavy gas is selected from the group consisting of N₂, O₂, F₂, Ne, Cl₂, Ar, Br₂, Kr, Xe, Rn, CH₄, C₂H₄, C₂H₆, C₃H₈, C₃H₆, C₄H₁₀, (CH₃)₃CH, NH₃, CO, CO₂, CCl₄, CH₃Cl, SO₂, SO₃, NO, NO₂, N₂O, CCl₃F, CCl₂F₂, CClF₃, CBrF₃, CF₄, CHCl₂F, CHClF₂, CHF₃, C₂Cl₄F₂, C₂Cl₃F₃, C₂Cl₂F₄, C₂Br₂F₄, C₂ClF₅, C₂F₆, C₂H₄F₂, C₂H₂F₄, and mixtures thereof.

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